IN THE CLAIMS:

Cancel claims 1-134.

135. (Currently Amended) A method for depth-resolved optical detection of a specimen comprising the steps of:

providing a scanning movement over the specimen or at least a part of the specimen of an illumination light distribution of at least one wavelength which is generated on or in the specimen;

providing detection ~~particularly~~ of the light which is influenced based on interaction with the specimen~~, especially fluorescent light; and/or reflected light and/or luminescent light and/or scattered and/or transmitted light~~;

said illumination light having a modulation in at least one spatial direction; and

carrying out the scanning movement and detection associated with the scanning movement at least in a first and a second different phase position of the modulation and/or first and second frequency of the periodicity of the modulation; and

calculating <u>and presenting</u> at least one optical section image through the specimen or through part of the specimen.

136. (Previously Presented) The method according to claim 135, wherein the modulation is carried out by impressing at least one structure which is spatially periodic in at least one dimension.

137. (Previously Presented) The method according to claim 135, wherein the light distribution is imaged on the specimen.

138. (Previously Presented) The method according to claim 135, wherein the section image is graphically displayed.

139. (Previously Presented) The method according to claim 135, wherein an optical imaging of a periodic structure is carried out.

140. (Previously Presented) The method according to claim 135, wherein at least one interference pattern is impressed on the specimen.

141. (Previously Presented) The method according to claim 135, wherein a plurality of frequencies and phase positions of the structure are imaged on the specimen simultaneously.

142. (Previously Presented) The method according to claim 135, wherein a plurality of frequencies and phase positions of the structure are imaged on the specimen sequentially.

143. (Previously Presented) The method according to claim 135, wherein the illumination is carried out by means of a line-shaped light distribution which has an extension of up to diffraction limitation in the narrow direction and, in the other direction at right angles thereto, a multiple of this extension.

144. (Previously Presented) The method according to claim 135, wherein pointwise scanning is carried out by means of the scanning movement.

145. (Previously Presented) The method according to claim 135, wherein a scanning movement of a line pattern and/or at least a one-dimensional or two-dimensional point pattern is carried out within a scan field.

146. (Previously Presented) The method according to claim 145, wherein a composite image is generated from the scanned line patterns and/or point patterns.

147. (Previously Presented) The method according to claim 145, wherein an equidistant raster of line patterns and/or point patterns is used.

148. (Previously Presented) The method according to claim 135, wherein the illumination light contains a plurality of wavelengths.

149. (Previously Presented) The method according to claim 135, wherein with n wavelengths at least n+1 phase positions of the structure are detected.

150. (Previously Presented) The method according to claim 135, wherein phase and/or frequency are adjusted differently for every wavelength for generating coding values.

151. (Previously Presented) The method according to claim 135, wherein a wavelength-dependent phase coding and/or frequency coding of the illumination light is carried out and the optical section image is calculated per wavelength by means of the coding.

152. (Previously Presented) The method according to claim 135, wherein the scan process is carried out with a line with a plurality of wavelengths.

153. (Previously Presented) The method according to claim 135, wherein the scan process is carried out with a plurality of lines simultaneously.

154. (Previously Presented) The method according to claim 153, wherein illumination is carried out with one or more wavelengths.

155. (Previously Presented) The method according to claim 135, wherein, in the calculation of phase images ($I_j(x)$ with image phase: φ_i) with phase coding of the excitation wavelength (ϕ_j), images are calculated which contain the image information of the pseudo-confocal section (C_j) and of background (B_j), which image information is characteristic of the respective *j*th wavelength:

$$I_0(x) = \sum_{j=1}^{n} C_j(x) \cdot \cos(k \cdot x + \phi_j + \varphi_0) + B_j(x)$$

$$I_1(x) = \sum_{j=1}^{n} C_j(x) \cdot \cos(k \cdot x + \phi_j + \varphi_1) + B_j(x)$$

$$I_2(x) = \sum_{j=1}^{n} C_j(x) \cdot \cos(k \cdot x + \phi_j + \varphi_2) + B_j(x)$$

...

$$I_n(x) = \sum_{j=1}^{n} C_j(x) \cdot \cos(k \cdot x + \phi_j + \varphi_n) + B_j(x),$$

wherein

$$\begin{pmatrix} c_{11} & c_{12} & \cdots & \cdots \\ c_{21} & c_{22} & \cdots & \cdots \\ \cdots & \cdots & \cdots & \cdots \\ c_{n1} & c_{n2} & \cdots & c_{nm} \end{pmatrix} \cdot \begin{pmatrix} C_1 \\ C_2 \\ \cdots \\ C_n \end{pmatrix} = \begin{pmatrix} I_1 - I_0 \\ I_2 - I_0 \\ \cdots \\ I_n - I_0 \end{pmatrix},$$

where $c_{ij}(x) = \cos(k \cdot x \cdot \phi_j + \varphi_i) - \cos(k \cdot x + \phi_j)$.

156. (Previously Presented) The method according to claim 135, using a periodic structure whose period changes at least in one spatial direction (Y) vertical to the direction of periodicity (X).

157. (Previously Presented) The method according to claim 135, using an optical arrangement with a dispersive unit which splits the illumination light into spectral components and joins it again and which has imaging optics for imaging the spectral components in a focal plane, wherein a periodic structure for influencing the illumination light in a wavelength-dependent manner is provided in or in the vicinity of the focal plane.

158. (Previously Presented) The method according to claim 135, wherein the generation of optical section images is carried out by structured illumination by means of recording individual images with different modulation frequency and/or image phase.

159. (Previously Presented) The method according to claim 135, wherein the optical section thickness is varied by changing the modulation frequency.

160. (Previously Presented) The method according to claim 135, wherein a phase coding is carried out with simultaneous imaging of different wavelengths and/or line foci on a common detector.

161. (Previously Presented) The method according to claim 135, wherein a frequency coding is carried out with simultaneous imaging of different wavelengths and/or line foci on a common detector.

162. (Previously Presented) The method according to claim 135, wherein a plurality of wavelengths are imaged simultaneously with respect to time on the specimen.

163. (Previously Presented) The method according to claim 162, wherein the imaging is carried out in a spatially separated manner or on a common location of the specimen.

164. (Previously Presented) The method according to claim 135, wherein a wavelength is imaged on the specimen.

165. (Previously Presented) The method according to claim 164, wherein the imaging is carried out in a repeatedly spatially separated manner or on a location of the specimen.

166. (Previously Presented) The method according to claim 135, wherein the light distribution is imaged on the specimen in a line-shaped or point-shaped manner.

167. (Previously Presented) The method according to claim 135, wherein a sequential recording of the individual images is carried out.

168. (Previously Presented) The method according to claim 135, wherein a plurality of line-shaped and/or point-shaped light distributions are generated.

169. (Previously Presented) The method according to claim 135, wherein a parallel recording of individual images is carried out.

170. (Currently Amended) The method according to claim 135, wherein, with a plurality of wavelengths, the section thicknesses are ~~preferably~~ identically adjusted by changing the modulation frequency.

171. (Previously Presented) The method according to claim 135, wherein the detection is carried out with point detectors and/or line detectors and/or matrix detectors.

172. (Previously Presented) The method according to claim 135, wherein a wavelength-dependent phase coding is carried out by an arrangement for generating a wavelength-dependent parallel offset along the periodic structure.

173. (Previously Presented) The method according to claim 135, wherein a wavelength-dependent phase coding is carried out by a tilted plate in an intermediate image.

174. (Previously Presented) The method according to claim 135, wherein a wavelength-dependent phase coding is carried out by a dispersive element.

175. (Previously Presented) The method according to claim 135, wherein a wavelength-dependent phase coding is carried out by an optical arrangement with a dispersive unit which splits the illumination light into spectral components and unites them again, which optical arrangement has imaging optics for imaging the spectral components in a focal plane, wherein a periodic structure is provided in or in the vicinity of the focal plane for wavelength-dependent influencing of the illumination light, wherein the structure is rotatable about the optical axis.

176. (Previously Presented) The method according to claim 175, wherein the spectral splitting is carried out in an intermediate image.

177. (Previously Presented) The method according to claim 135, wherein a frequency coding of a plurality of wavelengths is carried out by an optical arrangement with a dispersive unit which splits the illumination light into spectral components and unites them again, which optical arrangement has imaging optics for imaging the spectral components in a focal plane, wherein a periodic structure is provided in or in the vicinity of the focal plane for wavelength-dependent influencing of the illumination light, with a periodic structure whose period changes at least in one spatial direction (Y) vertical to the direction of periodicity (X).

178. (Previously Presented) The method according to claim 135, wherein a frequency coding of a plurality of wavelengths is carried out in that the imaging scale is changed in a wavelength-dependent manner.

179. (Previously Presented) The method according to claim 135, wherein a frequency coding of a plurality of wavelengths is carried out by an optical arrangement with a dispersive unit which splits the illumination light into spectral components and unites them

again, which optical arrangement has imaging optics for imaging the spectral components in a focal plane, wherein a periodic structure is provided in or in the vicinity of the focal plane for wavelength-dependent influencing of the illumination light, with a structure composed of a plurality of parts of different periodicity.

180. (Previously Presented) The method according to claim 135, wherein a sequential recording of the individual images is carried out with a change in the image phase.

181. (Previously Presented) The method according to claim 180, wherein a displacement of the periodic structure is carried out at right angles to the optical axis.

182. (Previously Presented) The method according to claim 135, wherein a sequential recording of the individual images is carried out with a change in the image phase by adjusting the position of the scanner.

183. (Previously Presented) The method according to claim 135, wherein a sequential recording of the individual images is carried out with a change in the image phase by tilting a plane-parallel plate.

184. (Previously Presented) The method according to claim 135, wherein a sequential recording of the individual images is carried out with a change in the modulation frequency.

185. (Previously Presented) The method according to claim 135, wherein a sequential recording of the individual images is carried out with a change in the modulation frequency by a wavelength-dependent change in the imaging scale.

186. (Previously Presented) The method according to claim 135, wherein a sequential recording of the individual images is carried out with a change in the modulation frequency by swiveling in different structures with different periodicity.

187. (Previously Presented) The method according to claim 135, wherein a sequential recording of the individual images is carried out with a change in the modulation frequency by a displacement of a periodic structure, whose period changes at least in one

spatial direction (Y) essentially vertical to the direction of periodicity (X), vertical to the periodicity.

188. (Previously Presented) The method according to claim 135, wherein a plurality of light distributions are generated on the specimen and a parallel recording of the individual images is carried out.

189. (Currently Amended) The method according to claim 188, with generation of a plurality of light distributions on the specimen with a wavelength, ~~especially~~ by splitting the illumination into a plurality of partial beams with a beam splitter arrangement comprising at least one full mirror and a partially transmitting mirror or splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure acting as beam splitter.

190. (Currently Amended) The method according to claim 188, with generation of a plurality of light distributions on the specimen with a plurality of wavelengths, ~~especially~~ by splitting the illumination into a plurality of partial beams with a dispersive element or splitting the illumination into a plurality of partial beams by a beam splitter arrangement comprising at least one full mirror and a partially transmitting mirror or splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure acting as beam splitter.

191. (Previously Presented) The method according to claim 135, wherein a parallel recording of the individual images is carried out with different phase positions of the illumination.

192. (Currently Amended) The method according to claim 191~~,~~ with a plurality of wavelengths, ~~especially~~ by means of an arrangement with a dispersive element and a periodic structure which is rotatable about the optical axis, wherein the dispersive element is preferably arranged in the intermediate image, and/or an arrangement with a dispersive element and a periodic structure comprising a plurality of parts of different periodicity and the dispersive element is preferably arranged in the intermediate image and/or arrangement with a dispersive element, wherein the periodic structure is reflecting and acts as a beam splitter.

193. (Currently Amended) The method according to claim 191, with one wavelength, ~~especially~~ by splitting the illumination into a plurality of partial beams with a beam splitter arrangement comprising at least one full mirror and a partially transmitting mirror or splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure acting as beam splitter, wherein the structure is rotatable about the optical axis, or by splitting the illumination into a plurality of partial beams with a beam splitter arrangement comprising at least one full mirror and a partially transmitting mirror or splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure acting as beam splitter, wherein the structure comprises a plurality of parts.

194. (Previously Presented) The method according to claim 135, wherein a parallel recording is carried out with different modulation frequency.

195. (Currently Amended) The method according to claim 194, with a plurality of wavelengths,

~~especially~~ by means of arrangement of a dispersive element and a periodic structure whose period changes at least in one spatial direction (Y) essentially vertical to the direction of periodicity (X), or an arrangement with a dispersive element, wherein the periodic structure comprises parts of different periodicity, wherein the dispersive element is preferably arranged in an intermediate image.

196. (Currently Amended) The method according to claim 194, with one wavelength, ~~especially~~ by splitting the illumination into a plurality of partial beams with a beam splitter AO comprising at least one full mirror and a partially transmitting mirror or splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure, with a period structure whose period changes at least in one spatial direction (Y) essentially vertical to the direction of periodicity (X), or by splitting the illumination into a plurality of partial beams with a beam splitter AO comprising at least one full mirror and one partially transmitting mirror or by splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure, wherein the periodic structure comprises parts of different periodicity.

197. (Currently Amended) An arrangement for depth-resolved optical detection of a specimen, ~~especially of~~ the light of an illumination light distribution which is influenced based on interaction with the specimen, ~~especially fluorescent light and/or reflected light and/or luminescent light and/or scattered and/or transmitted light,~~ comprising:

means for illuminating the specimen with at least one wavelength;

means for generating a relative movement between the specimen and illumination light;

means for imaging the light influenced by the specimen on at least one detector;

means for imaging a structure which changes in a spatially periodic manner in at least one dimension in different phases and/or frequencies of the periodicity on the specimen; and

means for calculating at least one optical section image from the local information of the light influenced by the specimen.

198. (Previously Presented) The arrangement according to claim 197, wherein means are provided for graphically displaying the section image.

199. (Previously Presented) The arrangement according to claim 197, wherein means are provided for imaging at least one interference pattern.

200. (Previously Presented) The arrangement according to claim 197, wherein the illumination is carried out by means of a line-shaped light distribution which has an extension of up to diffraction limitation in the narrow direction and, in the other direction at right angles thereto, a multiple of this extension.

201. (Previously Presented) The arrangement according to claim 197, wherein scanning is carried out in pointwise manner by means of the scanning movement.

202. (Previously Presented) The arrangement according to claim 197, wherein a scanning movement of a line pattern and/or at least a one-dimensional or two-dimensional point pattern is carried out within a scan field.

203. (Currently Amended) The arrangement according to claim 197, wherein a composite image is generated from ~~the~~ a plurality of scanned line patterns and/or point patterns.

204. (Previously Presented) The arrangement according to claim 197, wherein an equidistant raster of line patterns and/or point patterns is used.

205. (Previously Presented) The arrangement according to claim 197, wherein the illumination light contains a plurality of wavelengths.

206. (Previously Presented) The arrangement according to claim 197, wherein the scan process is carried out with a line with a plurality of wavelengths.

207. (Previously Presented) The arrangement according to claim 197, wherein the scan process is carried out with a plurality of lines simultaneously.

208. (Previously Presented) The arrangement according to claim 197, wherein scanning is carried out with one or more wavelengths.

209. (Previously Presented) The arrangement according to claim 197, with a periodic structure whose period changes at least in one spatial direction (Y) vertical to the direction of periodicity (X).

210. (Previously Presented) The arrangement according to claim 197, with an optical arrangement with a dispersive unit which splits the illumination light into spectral components and unites them again and which has imaging optics for imaging the spectral components in a focal plane, wherein a periodic structure for influencing the illumination light in a wavelength-dependent manner is provided in or in the vicinity of the focal plane.

211. (Previously Presented) The arrangement according to claim 210, wherein the dispersive splitting is carried out in an intermediate image plane.

212. (Previously Presented) The arrangement according to claim 197, wherein a phase coding is carried out with simultaneous imaging of different wavelengths and/or line foci on a common detector.

213. (Previously Presented) The arrangement according to claim 197, wherein a frequency coding is carried out with simultaneous imaging of different wavelengths and/or line foci on a common detector.

214. (Previously Presented) The arrangement according to claim 197, wherein a plurality of wavelengths are imaged simultaneously with respect to time on the specimen.

215. (Previously Presented) The arrangement according to claim 197, wherein the imaging is carried out in a spatially separated manner or on a common location of the specimen.

216. (Previously Presented) The arrangement according to claim 197, wherein a wavelength is imaged on the specimen.

217. (Previously Presented) The arrangement according to claim 197, wherein the imaging is carried out in a repeatedly spatially separated manner or on a common location of the specimen.

218. (Previously Presented) The arrangement according to claim 197, wherein the light distribution is imaged on the specimen in a line-shaped or point-shaped manner.

219. (Previously Presented) The arrangement according to claim 197, wherein a sequential recording of the individual images is carried out.

220. (Previously Presented) The arrangement according to claim 197, wherein a plurality of line-shaped and/or point-shaped light distributions are provided.

221. (Previously Presented) The arrangement according to claim 197, wherein a parallel recording of individual images is carried out.

222. (Previously Presented) The arrangement according to claim 197, wherein the detection is carried out with point detectors and/or line detectors and/or matrix detectors.

223. (Previously Presented) The arrangement according to claim 197 for wavelength-dependent phase coding.

224. (Previously Presented) The arrangement according to claim 223, for generating a wavelength-dependent parallel offset along the periodic structure.

225. (Previously Presented) The arrangement according to claim 224, with a tilted plane-plate in an intermediate image.

226. (Previously Presented) The arrangement according to claim 224, with an element in an imaging pupil, which element is dispersive in the direction of periodicity.

227. (Withdrawn) An arrangement for phase coding with an optical arrangement comprising:

a dispersive unit which splits illumination light into spectral components and unites them again;

said optical arrangement having imaging optics for imaging the spectral components in a focal plane; and

a periodic structure being provided in or in the vicinity of the focal plane for wavelength-dependent influencing of the illumination light, said structure being rotatable about the optical axis.

228. (Withdrawn) The arrangement according to claim 227, wherein the spectral splitting is carried out in an intermediate image.

229. (Withdrawn) The arrangement according to claim 227, for frequency coding of a plurality of wavelengths with an optical arrangement with a dispersive unit which

splits the illumination light into spectral components and unites them again, which optical arrangement has imaging optics for imaging the spectral components in a focal plane, wherein a periodic structure is provided in or in the vicinity of the focal plane for wavelength-dependent influencing of the illumination light, with a periodic structure whose period changes at least in one spatial direction (Y) vertical to the direction of periodicity (X).

230. (Withdrawn) The arrangement according to claim 227, for frequency coding of a plurality of wavelengths, wherein the imaging scale is changed in a wavelength-dependent manner.

231. (Withdrawn) The arrangement according to claim 227, for frequency coding of a plurality of wavelengths with an optical arrangement with a dispersive unit which splits the illumination light into spectral components and unites them again, which optical arrangement has imaging optics for imaging the spectral components in a focal plane, wherein a periodic structure is provided in or in the vicinity of the focal plane for wavelength-dependent influencing of the illumination light, with a structure composed of a plurality of parts of different periodicity.

232. (Withdrawn) The arrangement according to claim 227, for sequential recording of the individual images with changed image phase by displacement of the structure (PE) at right angles to the optical axis.

233. (Withdrawn) The arrangement according to claim 227, for sequential recording of the individual images with changed image phase by adjusting the position of a scanner.

234. (Withdrawn) The arrangement according to claim 227, for sequential recording of the individual images with changed image phase by tilting a plane-parallel plate.

235. (Withdrawn) The arrangement according to claim 227, for sequential recording of the individual images with changed modulation frequency with means for changing the imaging scale in a wavelength-dependent manner.

236. (Withdrawn) The arrangement according to claim 227, for sequential recording of the individual images with changed modulation frequency by swiveling in different gratings with different periodicity.

237. (Withdrawn) The arrangement according to claim 227, for sequential recording of the individual images with changed modulation frequency by displacement of a periodic structure, whose period changes at least in one spatial direction (Y) vertical to the direction of periodicity (X), vertical to the periodicity.

238. (Withdrawn) The arrangement according to claim 227, for generating a plurality of light distributions on the specimen and parallel recording of the individual images.

239. (Withdrawn) The arrangement according to claim 227, for generating a plurality of light distributions on the specimen and parallel recording of the individual images with one wavelength, especially by splitting the illumination into a plurality of partial beams with a beam splitter arrangement comprising at least one full mirror and a partially transmitting mirror and/or splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure acting as beam splitter.

240. (Withdrawn) The arrangement according to claim 227, for generating a plurality of light distributions on the specimen and parallel recording of the individual images with a plurality of wavelengths, especially by splitting the illumination into a plurality of partial beams with a dispersive element and/or splitting the illumination into a plurality of partial beams by a beam splitter arrangement comprising at least one full mirror and a partially transmitting mirror, splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure acting as beam splitter.

241. (Withdrawn) The arrangement according to claim 227, for parallel recording of the individual images with different phase positions of the illumination.

242. (Withdrawn) The arrangement according to claim 227, for parallel recording of the individual images with different phase positions of the illumination, with a plurality of wavelengths, especially with an arrangement with a dispersive element, wherein a

periodic structure is rotatable about the optical axis, and the dispersive element is preferably arranged in the intermediate image, and/or an arrangement with a dispersive element, wherein the periodic structure comprises a plurality of parts of different periodicity and/or arrangement with a dispersive element, wherein the periodic structure is reflecting and acts as a beam splitter.

243. (Withdrawn) The arrangement according to claim 227, for parallel recording of the individual images with different phase positions with one wavelength, especially by splitting the illumination into a plurality of partial beams with a beam splitter arrangement comprising at least one full mirror and a partially transmitting mirror and/or splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure, wherein the structure is rotatable about the optical axis, and/or by splitting the illumination into a plurality of partial beams with a beam splitter AO comprising at least one full mirror and a partially transmitting mirror or splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure, wherein the structure comprises a plurality of parts.

244. (Withdrawn) The arrangement according to claim 227, for parallel recording with different modulation frequency.

245. (Withdrawn) The arrangement according to claim 227, for parallel recording with different modulation frequency with a plurality of wavelengths, especially with an arrangement with a dispersive element and a periodic structure whose period changes at least in one spatial direction (Y) essentially vertical to the direction of periodicity (X), and/or an arrangement with a dispersive element and a periodic structure, wherein the periodic structure comprises parts of different periodicity, wherein the dispersive element is preferably arranged in the intermediate image.

246. (Withdrawn)The arrangement according to claim 227, for parallel recording with different modulation frequency with one wavelength, especially by splitting the illumination into a plurality of partial beams with a beam splitter AO comprising at least one full mirror and a partially transmitting mirror and/or splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure acting as beam splitter and/or with a period structure whose period changes at least in one spatial

direction (Y) essentially vertical to the direction of periodicity (X), and/or by splitting the illumination into a plurality of partial beams with a beam splitter AO comprising at least one full mirror and a partially transmitting mirror or splitting the illumination into a plurality of partial beams with at least one mirror and a reflecting periodic structure acting as beam splitter, wherein the periodic structure comprises parts of different periodicity.

247. (Withdrawn) The arrangement according to claim 227, wherein at least one dispersive element is provided in front of the detector arrangement.

248. (Withdrawn) The arrangement according to claim 227, in a microscope, preferably a laser scanning microscope.

249. (Withdrawn) The arrangement for the excitation of optical specimen interaction in a plurality of specimen points according to claim 227, wherein a light beam is divided into at least two partial light beams, the partial light beams are superimposed interferometrically and shaped to form a line in which examined specimens are imaged, the occurring scan line which is modulated with a periodic structure is scanned over the specimen, and images with different phase positions of the structure are recorded on the line and confocal section images are calculated.

250. (Withdrawn) The arrangement according to claim 227, wherein the partial beams are generated by a pupil division.

251. (Withdrawn) The arrangement according to claim 227, wherein the partial beams are generated by a Fresnel biprism.

252. (Withdrawn) The arrangement according to claim 227, wherein an adjustment of the image phase is carried out by means of rotating the biprism.

253. (Withdrawn) The arrangement according to claim 227, wherein different wavelengths of the partial light beams are adjusted for frequency coding.

254. (Withdrawn) The arrangement according to claim 227, wherein the partial beams are generated by a roof mirror.

255. (Withdrawn) The arrangement according to claim 227, wherein an adjustment of the image phase is carried out by rotating the mirror.

256. (Withdrawn) The arrangement according to claim 227, wherein an adjustment of the modulation frequency is carried out by changing the angle of the mirror.

257. (Withdrawn) The arrangement according to claim 227, wherein the partial beams are generated by a beam splitter in cooperation with two mirrors.

258. (Withdrawn) The arrangement according to claim 227, wherein an adjustment of the image phase is carried out by displacing at least one mirror.

259. (Withdrawn) The arrangement according to claim 227, wherein an adjustment of the modulation frequency is carried out by rotating the beam splitter.

260. (Withdrawn) The arrangement according to claim 227, wherein an adjustment of the modulation frequency is carried out by rotating at least one mirror.

261. (Withdrawn) The arrangement according to claim 227, wherein a short pulse laser is used as a light source.

262. (Withdrawn) The arrangement according to claim 227, wherein an optical element for shaping a linear intensity distribution comprises at least one cylindrical lens or a holographic element or a diffractive element or a Powell lens.

263. (Withdrawn) A method for parallel excitation of a specimen interaction,

comprising the steps of:

dividing a light beam into a plurality of partial light beams;

superimposing the partial light beams interferometrically and shaping them to form a line in which examined specimens are imaged;

scanning the resulting periodically structured scan line over the specimen; and

recording images with different phase positions of the structure and calculating confocal section images.

264. (Withdrawn) The method according to claim 263, wherein the specimen interaction is a multiphoton absorption in a dye and/or generation of a higher harmonic in a specimen.

265. (Withdrawn) The method according claim 263, wherein the fluorescence of the absorbed radiation or the higher harmonic is recorded.

266. (Withdrawn) The method according to claim 263, wherein the dye is bleached in the irradiated region and the flowing in of new dye from surrounding regions is examined (FRAP).

267. (Withdrawn) The method according to claim 263, wherein the specimen interaction is the excitation of a higher harmonic.

268. (Withdrawn) The method according to claim 263, wherein the examined specimen is a biological specimen.